Norimbergæ *eandem Eclipſim obſervavit* J. P. Wurtzelbaur. *Initium quidem accurate ad* $1^{h}. 58'\frac{1}{2}$; *circa medium, ſc. ad* $2^{h}. 36'\frac{1}{2}$ *quantitatem maximam duorum dig. præciſe; Finem vero ad* $3^{h}. 18'. 33''$.

Ulmæ Sueviæ, *obſervavit* Honoldus *Initium ad* $1^{h}. 48'$; *Quantitatem maximam* 2_{3} *dig. Finem vero ad* $3^{h}. 16'$.

Lipſiæ, *obſervatore* Kirchio, *Eclipſis jam ſatis notabilis ad horam* $2^{h}. 20'. 10''$. *ad* $2^{h}. 47'\frac{1}{2}$ *digiti* $1\frac{1}{3}$ *circiter. Finis vero incidit præciſe in* $3^{h}. 15'$.

Vratiſlaviæ Sileſiæ *denique obſervavit* D. G. Schultzius *Maximam obſcurationem, paulo citius quam* $3^{h}. 12'\frac{1}{2}$ *fuiſſe* $1\frac{1}{2}$ *dig. Finem vero hora* $3^{h}. 37'$.

In omnibus hujuſmodi obſervationibus momentum Finis multo tutius determinatur; itaque huic potius fidendum eſt, præſertim in Eclipſibus parvis, ubi ob incidentiam maxime obliquam diu hærent quaſi in Contactu Luminaria.

Memoirs for a Natural Hiſtory of Animals; containing the Anatomical Deſcriptions of ſeveral Creatures, diſſected by the Royal Academy of Sciences at Paris; *Engliſhed by* Alexander Pitfield, *Eſquire, R. S. Soc. To which is added, An Account of the Meaſure of a Degree of a great Circle of the Earth: Publiſhed by the ſame Academy, and Engliſhed by* Richard Waller, *Eſquire, R. S. Secr.*

THis Book, containing the *Anatomical* Obſervations of 28 Species of Animals, and about 70 Individuals, was publiſhed in two very large *Folio*'s by the *Royal Academy* at *Paris*, and owned by them, as their united Labours, as they are a *Body*. The Difficulty of procuring Copies of the *French Edition*, few of the Learned having ever ſeen the Book, tho' Printed ſome Years ſince, was no ſmall Inducement, as the Tranſlators ſay, to their Undertaking.

Waving

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Waving what may be ſaid as to their *Preface*, and of the firſt 12 *Species* of Animals; *viz.* two *Lyons* and a *Lyoneſs*, a *Camelion*, a *Dromedary*, a *Bear*, five *Gazella*'s or Antilopes, a *Chat Pard*, a *Sea-Fox*, a *Caſtor*, an *Otter*, two *Civet Cats*, an *Elke*, and a *Coati mondi*, of all which, a large Account has been already given by Mr. *Oldenburg* in his Philoſophical Tranſactions, Numb. 49. & 124. to which I refer the Reader; I ſhall proceed to give ſome Account of the ſixteen remaining *Species*; all which were publiſhed in the Second Volumn of the *French Edition.*

The Thirteenth *Species* then is the *Sea-Calf*, which, from *Rondeletius*, they obſerve to be of two kinds, the larger from the *Ocean*, the leſſer from the *Mediterranean*, of which ſort this was. That which is moſt extraordinary in it, was the *Epiglottis*, much larger than in other Animals; its *Ventricle* like an Inteſtine: it had all the *Organs* for *Secretion* of *Urine*, and the *Kidneys* ſeemed compoſed of ſeveral Glands, each provided with a particular *Pelvis*: it had *Lungs* like other *Amphibious* Animals; and the *foramen Ovale* giving Paſſage to the Blood from the *Cava* to the *Aorta*. It had the *Criſtalline* more convex before, which is not common; and ſeveral Particularities in the Formation of the *Eye* favouring the Opinion of the Reception of the viſual *Species* on the *Retina*.

The Fourteenth, the *Barbary Cow*, an Animal ſomething reſembling a *Deer*: it had but two *Teats*, four *Ventricles* like other ruminating Animals, a very large *Cæcum*, and no diſtinct *Lobes* in the *Liver*. It was in ſeveral Particulars like the common Cow.

The Fifteenth is the *Cormorant*, wherein the ſhortneſs of the *Legs* is remarkable, and ſtructure of the *Feet* for ſwimming with one Foot while the other holds the Prey: the largeneſs of the *Oeſophagus*: want of the two *Cæcums*, found in moſt Birds: the *Kidneys* ſeparated from the other *Viſcera* by a particular Membrane: the *Tongue* and *Eye* very ſmall, this Water-Fowl being to feel for its Food under the Water, rather than diſcover it from afar.

The Sixteenth, the *Chamois* or *Rupicapra*, in whoſe *Ventricle* a Ball was found; whence they take occaſion to diſcourſe of the *Balls* found in the Stomachs of Creatures, as Cows, Horſes, &c. and obſerve that they are compos'd of *lignous Fibreo* and not *Hair*, as is uſually thought: beſides ſeveral other Obſervables, the *Cornua uteri* were very long and winding; the *Heart* had a *Callous Apophyſis*, &c.

The Seventeenth and Eighteenth are the *Porcupine* and *Hedg-hog*, a compariſon being made between theſe two *Animals*. They obſerve the external *Ear* of the *Porcupine* to be like a Mans; the end of the *Tongue* armed as it were with *Teeth*; the *Skin* provided with an extraordinary Muſcle for *Ejaculation* of the Quills. Of theſe they diſſected ſix. In comparing the *Hedg-hog* with them, they deſcribe the *Muſculus carnoſus*, which ſerves to bring the Head round into the Breech like a Foot ball; whereas in the *Porcupines* the *Cæcum* was very large, in the *Hedg-hog* there was none at all; the *Epididymis*, in the *Porcupine*, was ſeparate from the *Teſtis*; in the *Hedg-hog* united to it: in the *Hedg-hog* they obſerved a large *Cryſtalline* filling almoſt the whole Globe of the Eye.

The Nineteenth are four *Monkeys*; where they in general obſerve, that this *Animal* more reſembles *Man* in his outward ſhape than inward *Formation* of the Parts, which in many things are like a *Dog*; the *genital* Parts of the *Male* like neither; of the *Female* much like *Woman*; the Anfractuoſities of the *Brain* like Mans, but the *Proceſſus mammillares* were hard and membranous, which they are not in *Man*: they conclude with a compariſon of the *Muſcles*, which very much reſemble thoſe of *Men*.

The Twentieth is the *Stag* of *Canada* and *Sardinian Hinde*. In the *Stag*, the length of the *Inteſtines* is obſervable, being in all 96 feet; and indeed, generally all *graſing* Animals have long *Guts*. In the *Hinde*, the four *Ventricles* were more diſtinguiſhable than in the *Stag*; the *Cornua uteri* long and winding, as in the *Chamois*: in the Trunks of the *Jugulars* were found 16 *Valves*, which were in ſituation contrary to the *Cir-*

culation of the Blood. In the *Carotides* were obſerved ſeveral tranſverſe *Inciſures.*

The Twenty firſt, ten *Pintadoes*; where, after a full deſcription of the outward Form, they deſcribe ſeveral Parts like the common *Hen*; the *Pancreas* wanting: the *Bladders* in the lower Belly were raiſed by blowing into the *aſpera Arteria,* whence they hint at the uſe of *Reſpiration.*

The Twenty ſecond, three *Eagles:* after having diſcourſed of the ſix kinds of *Eagles*, according to *Ariſtotle* and *Pliny*; they obſerve, That the *Inteſtines,* after the uſual manner of *voracious* Animals, were ſlender and ſhort, as alſo the *Kidneys*; ſome had the *Cæcum,* others none: the Globe of the *Eye* was large, and the *Cornea* very prominent. In this Subject they firſt diſcovered that the *Spinal Marrow* in the middle of the Back was divided in two, with a *Ventricle* like thoſe in the *Brain* betwixt: this was afterwards found common to all *Birds.*

The Twenty third, two *Indian Cocks,* not our *Turky Cocks.* They were both Males: in one there was two *Pancreas*'s, with three *Cholidoci,* and two *Pancreatici ductus* into the *Inteſtine:* in the other was but one *Pancreas*, and a ſingle *ductus:* the *Inteſtines* were 12 feet long, and *Cæcum* ſix: the *Aſpera Arteria* made a fold in the *Craw-bone,* after a moſt particular manner.

The Twenty Fourth, ſix *Buſtards*; in which the *Craw* was ſcarce diſtinguiſhable from the *OEſophagus*, and furniſhed with a great number of *Glands* moſt conſpicuous in this, but to be found in moſt *Birds:* a particular deſcription of the *Gizzard* follows, and of a third *Cæcum* near the *Rectum* or the *Burſa Fabritii:* between the *Cornea* and *Sclerotica* a *cartilaginous* Circle was obſerved. They end with the diſcovery of a *black Purſe* in the *Eyes* of Birds.

The Twenty fifth, ſix *Demoiſelles* of *Numidia*, a kind of Crane, in which they found the *Liver* very large, and without *Gall-bladder* in ſome Subjects. In the Female a kind of Gland beſides the *Ovary*, reſembling the *Teſticles* of the *Male.* Amongſt other Obſervables, the Structure of the *Wind-pipe* was very unuſual, entering with a winding into the Bone of the

the *Sternum:* at its Union with the *Lungs* it had a kind of *Larynx:* the *Punctum Lachrymale* in the *Eye* was double, *&c.*

The Twenty ſixth, eight *Oſtriches*, in which they very largely diſcourſe of the make of the *Feathers* of Birds, and *joyning* of the Fibres of each Feather to one another; a great part of which, ſeems to have been taken out of Mr. *Hook*'s ingenious Book of *Microſcopical Obſervations*, tho' they have not thought fit to own it. The *Foot* of this *Animal* ſeems contrived for a ſpeedy Courſe, in which its *Wings* are of great uſe: the different length of the *Inteſtines* is obſervable, in ſome being 50, whereas in another they were but 29 feet; the *Cæcum*, which was double, was wreath'd like a *Screw*, and the inſide of the *Colon* provided with Valves or ſemilunar leaves, like Membranes. At the extremity of the *Rectum* was found a *Bladder* filled with Urine. In this Deſcription they diſcourſe largely of the *Ureters* and genital Parts of *Birds*, as likewiſe of the *Lungs*, and its Diviſions or *Diaphragmes*, and its Communication with the *Bladders* containing the *Ventricle* and *Inteſtines:* together with the manner and uſe of *Breathing* in *Birds*, explaining it by a pair of double *Bellows*, &c.

The Twenty ſeventh, the *Caſſowar*, a Bird but lately known to the *Europeans:* it has no Quills nor Feathers for *flying*, and indeed but ſhort *Wings:* that which was moſt unuſual was the want of a muſculous *Gizzard*, tho' a *granivorous Animal*; which might in ſome ſort be ſupplied by the number of *Ventricles*. In this Subject they more particularly inſiſt on the *Muſcles* of the *Thorax* neceſſary for *Reſpiration*, and a curious deſcription of the Parts of the *internal Eye lid* in *Birds*, as to its *Mechaniſm* and *Uſe*.

The Twenty eighth. They conclude theſe *Diſcourſes* with that of a very large *Land Tortois*, being four foot and ½ from the extremity of the *Head* to the *Tail*. Amongſt the *Internal* Parts, the Structure of the *Urine Bladder* is very curious for its *exteriour Tunicle* being *membranous:* the inſide was ſtrengthened with an infinite number of *muſculous Fibres*, not unlike thoſe in the *Ventricles* of the *Hearts* of *Animals*. This Contrivance ſeems neceſſary for the preſſing out of the *Urine* in this *Animal*, which has an unyielding *Belly*, not capable of *Compreſſion*; nor was the *formation* of the *Heart* leſs obſervable: it had three *Ventricles* communicating with each other by *holes* in the *Septum*: the *Vena Cava* had two Branches into two of the *Ventricles*, which likewiſe received Blood from two *Venæ pulmonares* to be tranſmitted to the *Aorta*, &c. Having been already too large, I ſhall paſs by what was obſerved of the extraordinary Structure of the *Lungs*, with a Diſcourſe of the *Lungs* of *Animals* in general, which they reduce to three *ſorts*; treating next of *Reſpiration*, together with an Experiment of blowing up the *Lungs* of a *Dog* with a pair of *Bellows*; but I ſhall refer, as to the other Particulars in this and the former *Anatomical Diſcourſes*, to the Book it ſelf, very well deſerving the Peruſal of all Perſons curious in *Anatomy* and *Chirurgery*, containing many uſeful Remarks and natural Diſcoveries, of which this is but a very imperfect Account.

An Experiment to this purpoſe made by Mr. Hook. *Vid.* Ph. Tr. n. 28. p. 539.

I ſhall ſay nothing of the *Meaſure* of the *Earth* added to the end of this Edition, a very full Account having been given of it in the *Philoſ. Tranſ.* Numb. 112. to which I refer the Reader: only the *Tranſlators* thought fit to annex it, the Curiouſneſs of its Subject, and exceeding Scarcity, being ſufficient to recommend it to this Learned and Inquiſitive Age.

Confucius Sinarum Philoſophus, *ſive Scientia Sinenſis Latine expoſita, Studio & Operâ Patrum Societatis JESU, &c. Adjecta eſt Tabula Chronologica Sinicæ Monarchiæ ab hujus exordio ad hæc uſque tempora.*

THE famed *Chineſe* Philoſopher *CUM-FU-CU*, or as we call him *Confucius*, being in ſo great eſteem in his own Nation, and having never yet appeared in an *European* Dreſs, cannot but be gratefully received by the Curious, eſpecially ſince the Verſion is performed by very ancient Miſſionairs ſufficiently accompliſhed in the knowledge of the *Chineſe* Character, and at the Command (as is ſaid) of the King of *France*.

The Subject of this Book being foreign to our purpoſe, as conſiſting chiefly of Moral and Political Precepts and Apophthegmes of the Philoſopher, I ſhall not enlarge thereon; only to recommend it, the Tranſlators aſſure, That the Memory of the Author is ſtill precious in *China*; and that in reſpect to *him*, his Poſterity, after above 2200 Years, enjoys certain great Priviledges never granted but to the Royal Family; is exempt from all Taxes; and whoſoever is advanced to the Degree of Doctor, gives, as a mark of his Reſpect to the great *Confucius*, ſome Preſent to the eldeſt of his Family, who is now 68 Generations removed from him.

As to the time when *Confucius* lived, 'tis here preciſely ſet down from the *Chineſe* Annals: He was born *Anno* 551. *ante Chriſtum*, and lived 73 Years; ſo that he was contemporary with the moſt ancient Greek Philoſophers, and not long after *Pythagoras*, flouriſhing about the time of *Tarquinius Superbus* and the firſt Conſulats, when *Darius Hyſtaſpis* held the *Perſian* Empire. He is ſaid to be deſcended of a Branch of one of the moſt ancient Royal Families, which might not a little contribute to gain Reſpect and Credit to his Writings.

But what may not improperly find place here, is, the *Chineſe* Chronology, whereof ſuch wonderful Relations have been brought into *Europe*: This Matter the Author of this Part of the Book, *P.Couplet*, ſeems well to have examined, and to have ſifted the credible from the fabulous. They begin their Account with the Years of the Reign of King *Fohi*, who was the Founder of their Empire, about the Year before Chriſt 2952; rejecting, as ill grounded, and not to be believed, all that ſome Authors have ſaid of the Times before, and following therein the Opinion of the beſt reputed *Chineſe* Hiſtorians. This *Fohi* is ſaid to have reigned 115 Years, and to have invented the Character now in uſe in *China*, and his Succeſſor *Xinnum* is made to govern 140 Years: Theſe two Kings are by our Author, by reaſon of ſome manifeſt Fables in their Hiſtory, reputed doubtful; wherefore they, as from a more certain *Æra*, chooſe to begin their Annals with the third King *Hoam-ti*, and the Year before Chriſt 2697. This *Hoam ti* is ſaid to have inſtituted the Sexagenary Cycles or Periods of 60 Years, according to which this Chronology is adjuſted, and for want of which or the like, our Account of Time, both Sacred and Profane, is ſubject to too great Uncertainties; the Years of the Reigns of Kings, where the Months and Days are neglected, introducing great Errors in length of time, which

which by this method are prevented. Since this Inſtitution, there are now 73 Periods elapſed, and the 74 is current; in which time they account that there has been 234 Kings of *China*, ſprung from no leſs than 22 ſeveral Royal Families; the King now reigning being the ſecond of the Race of the *Tartars*, who within theſe 50 Years have throughly ſubjected *China*.

In this Chronology are ſet down the beginnings of each Kings Reign, with a ſhort Character of the Prince, and the principal of his Acts, with the moſt notable Contingencies of his time: amongſt the reſt, ſeveral Eclipſes of great Antiquity are recorded, whereby this account may be examined.

The third King, *Chuen-hio*, is ſaid to be the Author of the *Chineſe* Kalendar, and to have appointed the beginning of the Year to be on the New-Moon next the beginning of the Spring, which the *Chineſe* account to be when the Sun is in 5 *gr.* of *Aquarius*: this Account is now in uſe, tho' inſtituted 2500 Years before Chriſt. About 700 Years after, the King *Chim-tam* reduced the beginning of the Year to the Winter Solſtice; but the former was reſtored about 100 Years before Chriſt, and ſtill continues.

The Years of this Account are Luni-ſolar, or conſiſting of 12 Lunar Months, half of 30 days, and the reſt of 29 days, with the Intercalation of 7 mon. in 19 years; ſo that 7 years in each Cycle have 13 mon. This Diſtribution of mon. was ordained by K. *Yao*, above 2300 years *ante Chriſtum*, and is, if rightly intercalated, a more exact meaſure of the Cœleſtial Motions than our *Julian* Account or old Style, for that fails a day in 131 years, whereas this Account of the *Chineſe* (which is nearly the ſame with the *Jewiſh*) fails but a day in 225 years, or 4 days in 900 years; but ſince their method of Intercalation is not here expounded, I ſhall not ſay more in a matter of ſuch Uncertainty.

'Tis here ſaid, that the famous Wall of *China*, extending above 400 Leagues, was begun by King *Xi-Hoam-ti* about the year *ant. Chr.* 210. to hinder the Incurſions of the *Tartars*, which in all Ages have infeſted this Country. The following Cycles are more amply deſcribed, and towards the End, the Tranſactions of the *Romiſh* Miſſionaries are inſerted, with a brief account of that great Revolution in *China*, by the entire Conqueſt of that Kingdom by the *Tartars*. This Chronology ends with the year of Chriſt 1683, being the laſt of the 73*d* Cycle, ſince the King *Hoamti*; and contains in all 4380 years.

'Twill be needleſs to advertiſe, that this Account places the beginning of the *Chineſe* Empire long before the *Deluge*, according to the Holy Scriptures; wherefore if this be to be wholly rejected, as fabulous; or if not, how it is to be reconciled with the ſacred Chronology, belongs more properly to the Diſquiſition of the Divines.